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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,751	06/22/2005	Stefano Fanfani	71653	5102
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EXAMINER				
MOORE, KARLA A				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/520,751

Applicant(s)

FANFANI, STEFANO

Examiner

KARLA MOORE

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claims 24-25 and the allowable subject matter of claims 5-7, 10, 16 and 21 is withdrawn in view further consideration of previously applied references, as well as newly discovered reference(s) to Choquette et al. and Tsuji. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-4, 9, 11-23 and 25-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 1 and 26-27 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: how the vacuum chamber introduced in line 3 relates to the vacuum chamber introduced at line 19. Examiner has assumed that at line 19, the introduction was meant to refer to the previously introduced vacuum chamber (i.e. line 19 was meant to recite "said vacuum chamber"). The same situation is present at lines 2 and 18 of claim 26. Examiner has

made the same assumption regarding these recitations. The same situation is present at lines 2 and 18 of claims 26 and 27. Examiner has made the same assumption regarding these recitations in these claims.

5. Claim 14 recites the limitation "inside the arc defined by the cross section". There is insufficient antecedent basis for this limitation in the claim. Examiner has assumed that the recitation was meant to read "inside an arc defined by a cross section".

6. Claim 16 recites the limitation "said". There is insufficient antecedent basis for this limitation in the claim. Examiner has assumed that the recitation was meant to read "said fixed body".

7. Claim 20 recites the limitation "the volume protected by said housing". There is insufficient antecedent basis for this limitation in the claim. Examiner has assumed that the recitation was meant to read "a volume protected by said housing".

8. Claim 21 recites the limitation "the vicinity of the edge of the hatch" and "the edge of the fixed body" and "the axis of rotation of the carousel". There is insufficient antecedent basis for these limitations in the claim. Examiner has assumed that the recitation was meant to read "a vicinity of an edge the hatch" and "an edge of the fixed body" and "an axis of rotation of a carousel", respectively.

9. Claim 25 recites the limitation "said at least one diffuser", at line 10 thereof. There is insufficient antecedent basis for this limitation in the claim. Examiner has assumed that the recitation was meant to read "said diffuser".

10. Claim 28 recites the limitation "said chamber", at line 15 thereof. There is insufficient antecedent basis for this limitation in the claim. Examiner has assumed that the recitation was meant to read "said vacuum chamber".

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-4, 8-9, 11-16 and 18-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,895,531 to Vignola in view of German Patent No. 19826259 A1 to Burger et al. (U.S. Patent Publication No. 2002/0100420 is used as a working translation of Burger et al. All references to the disclosure of Burger et al. are with respect to the U.S. document) and U.S. Patent Publication No. 20030111342 to Choquette et al. and U.S. Patent No. 5,380,420 to Tsuji.

13. Regarding claims 1, 24-28: Vignola discloses a plant for vacuum metallization of objects treated in batches in Figures 1-12 substantially as claimed and comprising: a vacuum chamber (12); at least one part carrying system (66) movable inside said vacuum chamber; at least one discharge electrode (106); at least one diffuser (102 and 104) associated with said discharge electrode for introduction of at least one fluid substance; a housing (14) containing at least partly said discharge electrode and/or said diffuser; wherein said discharge electrode, said housing and said diffuser are elongated

and extend parallel to a longitudinal axis of said vacuum chamber, and said housing is opened parallel to said axis.

14. However, Vignola fails to teach said housing is arranged inside said vacuum chamber, in an approximately central position.

15. Burger et al. teach providing a housing at a central portion of a vacuum metallization chamber for the purpose of preventing the formation of plasma in undesired locations of the vacuum metallization chamber (paragraph 23). A discharge electrode (Figures 1 and 2, 15) is at least partly contained by the housing. Burger et al. also teach that the type and arrangement (e.g. on inner wall of the chamber or centrally located) of a plasma source (or sources) can be chosen in accordance with constructive and process-technical conditions (paragraphs 6 and 21-23).

16. It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to have provided a housing in Vignola in order to prevent formation of plasma in undesired locations of the vacuum metallization chamber as taught by Burger et al. It would have also been obvious to choose a type and arrangement of plasma sources for the vacuum metallization chamber in accordance with constructive and process-technical positions as taught by Burger et al.

17. Vignola and Burger et al. disclose the plant substantially as claimed and as described above.

18. However, Vignola and Burger fail to disclose a plurality of closing hatches, said housing, said discharge electrode and said diffuser being located on each of said closing hatchings, said diffuser being located in an area of said discharge electrode,

each of said closing hatches having said part carrying system connected thereto; and a fixed body for alternately receiving one of said closing hatches and another of said closing hatches, one of said closing hatches and said fixed body defining said vacuum chamber when said fixed body receives one of said closing hatches, said part carrying system being movable within said vacuum chamber when said fixed body receives one of said closing hatches.

19. Choquette et al. discloses a vacuum metallization plant comprising a plurality of oppositely hinged doors/hatches (Figure 1, 22 and 24) to be alternatingly used with a vacuum chamber/fixed body (14) and each of said doors/hatches having a rotatable part-carrying system connected thereto. The hinged doors are hinged with said body on opposite sides thereof about hinging axes substantially parallel to the axis of the vacuum chamber, said axis being substantially vertical. The plant is structured as such for the purpose of, inter alia, achieving faster cycle times (paragraphs 9 and 10, for example).

20. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the vacuum metallization plant of Vignola and Burger et al. comprising a plurality of oppositely hinged doors/hatches to be alternatingly used with the vacuum chamber/fixed body and each of said doors/hatches having a rotatable part-carrying system connected thereto in order to, inter alia, achieving faster cycle times as taught by Choquette et al.

21. Vignola, Burger et al. and Choquette et al. disclose the invention substantially as claimed and as described above.

22. However, Vignola, Burger et al. and Choquette et al. fail to disclose said housing said discharge electrode and said diffuser (in general, the coating mechanism) being located on or inside the closing hatches.

23. Tsuji discloses a vacuum metallization apparatus comprising a closing/hatch door provided with a part-carrying system and a coating mechanism (a bar like anode) and therefore movable therewithfor the purpose of easily and rapidly carrying the workpieces and the coating mechanism in and out of the apparatus (column 4, rows 1-16).

24. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the closing/hatch door as disclosed by Vignola, Burger et al. and Choquette et al. provided with the part-carrying system and the coating mechanism (i.e. the housing, discharge electrode and diffuser) thereon or inside thereof (in a door structured as in Choquette, for example) in order to easily and rapidly carry the workpieces and the coating mechanism in and out of the apparatus as taught by Tsuji.

25. With respect to claim 2, in Vignola, said part carrying system rotates about an axis of rotation inside the vacuum chamber (column 4, rows 31-37).

26. With respect to claims 3 and 12-15, in the combined teachings of Vignola and Burger et al., said housing has the form of a substantially semi-cylindrical (arched, cylindrical, etc.) wall surrounding at least partially (arranged inside) said discharge electrode and said diffuser.

27. With respect to claim 4, in the combined teachings of Vignola, Burger et al., Choquette et al. and Tsuji, said housing is arranged inside said part carrying system.
28. With respect to claim 9, in the combined teachings of Vignola, Burger et al., Choquette et al. and Tsuji, said housing, said discharge electrode and said diffuser have a horizontal extension substantially parallel to the axis of said vacuum chamber.
29. With respect to claim 11, in the combined teachings of Vignola, Burger et al., Choquette et al. and Tsuji, said housing said discharge electrode and said diffuser are mounted on an end of said chamber substantially opposite the hatch for closing thereof.
30. With respect to claim 16, the combined teachings of Vignola, Burger et al., Choquette et al. and Tsuji disclose the chamber defined by said fixed body and by said closing hatches has a substantially cylindrical shape with a circular cross section.
31. With respect to claims 18-20, the apparatus of Vignola comprises a plurality of diffusers enclosed in a volume protected by said housing. With respect to the materials supplied through the diffusers, the courts have ruled that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). The courts have also ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).
32. With respect to claim 21, the combination of Vignola, Burger et al., Choquette et al. and Tsuji teaches each of said hatches, the discharge electrode, the diffuser and the housing located in a vicinity of the hatch which in closed condition cooperates with an

edge of the fixed body so as to form said vacuum chamber and in that said housing has a convexity directed toward an axis of rotation of a carousel.

33. With respect to claim 22, both Vignola and Burger et al. teach that two or more housings may be provided arranged in the vacuum chamber with corresponding discharge electrodes and diffusers.

34. With respect to claim 23, said part carrying system in Vignola comprises a carousel rotating about a main axis of rotation and a series of part carrying devices rotating about respective auxiliary axes parallel to the main axes of rotation, the parts thus being imparted a planetary motion inside the vacuum chamber (column 4, rows 23-42).

35. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vignola, Burger et al., Choquette et al. and Tsuji as applied to claims 1-4, 8-9, 11-16 and 18-28 above, and further in view of 2001/0054391 A1 to Dunham.

36. Vignola, Burger et al., Choquette et al. and Tsuji disclose the invention substantially as claimed and as described above, including the diffuser comprising a plurality of calibrated holes distributed along the longitudinal extension thereof and the diffuser being connected to a duct supplying a product to be diffused inside the vacuum chamber on a first end and being closed on a second end.

37. However, Vignola, Burger et al., Choquette et al. and Tsuji fail to disclose a diameter of the holes increasing from the first end to the second end.

38. Dunham teaches that it is known in the art to determine the dimensions of gas flow structures through computer modeling for the purpose of producing optimum uniformity characteristics and gas flow characteristics (paragraph 32).

39. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided holes of optimized diameter(s) according to computer modeling in Vignola, Burger et al., Choquette et al. and Tsujii in order to produce optimum uniformity characteristics and gas flow characteristics as taught by Dunham.

Response to Arguments

40. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARLA MOORE whose telephone number is (571)272-1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1792

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karla Moore/
Primary Examiner, Art Unit 1792
21 June 2008